

## Short communication

## Validation of the classification of ARIA (allergic rhinitis and its impact on asthma)

**Background:** Allergic rhinitis is commonly divided into seasonal and perennial rhinitis. The recent Allergic Rhinitis and its Impact on Asthma (ARIA) workshop proposes to replace these terms by intermittent vs persistent rhinitis.

**Methods:** In order to test the new ARIA classification against the classical one used in medical practice in France, we designed two cross-sectional surveys: (i) a spring survey, where 1321 general practitioners enrolled 3026 patients consulting for seasonal allergic rhinitis and (ii) an autumn–winter survey, where 1346 doctors enrolled 3507 patients for perennial allergic rhinitis. Both doctors and patients filled out a specific questionnaire on allergic rhinitis.

**Results:** Focusing on the number of days per week and consecutive weeks per year, the patients described the duration of their symptoms (based on an auto-questionnaire). About 43.7% of the patients, classified by their doctor as seasonal, did in fact have persistent rhinitis, whereas 44.6% classified as perennial had intermittent rhinitis.

**Conclusions:** The proposal of the ARIA expert panel defining the chronology of allergic rhinitis as number of days per week and consecutive weeks per year is likely to change daily physician practice.

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**Key words:** allergic rhinitis; ARIA; epidemiological survey; general practice; guidelines.

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Allergic rhinitis has always been subdivided, based on the time of occurrence during the year, into seasonal and perennial disease (1, 2). Seasonal allergic rhinitis is related to a wide variety of outdoor allergens such as pollens or moulds. Perennial allergic rhinitis is most frequently caused by indoor allergens such as house dust mites, moulds, cockroaches and animal danders. However, this

subdivision is not entirely satisfactory for many reasons. Some patients sensitized to seasonal allergens can present with perennial symptoms due to exposure to several pollens over several months. Conversely, other patients sensitized to perennial allergens present symptoms for only a few weeks per year. Furthermore, most patients have multiple sensitizations and symptoms throughout the year. Lastly, seasonal allergens in one region or country can be perennial in another country and vice versa.

With this in mind, the Allergic Rhinitis and its Impact on Asthma (ARIA) workshop has changed the chronological definition of allergic rhinitis (3) and has taken into account the number of days per week and consecutive weeks per year during which a patient is symptomatic. However, this new classification is not evidence-based and has not been validated in daily practice.

To address this issue, we designed two pharmacoepidemiological cross-sectional surveys on the management of allergic rhinitis in everyday medical practice in France: the ERASM (4) and the ERAP (*enquête pharmaco-épidémiologique sur la prise en charge de la rhinite allergique*

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*Abbreviations:* ARIA, Allergic Rhinitis and its Impact on Asthma; ERAP, *Enquête pharmaco-épidémiologique sur la prise en charge de la rhinite allergique per-annuelle* – Pharmacoepidemiologic survey on the management of perennial allergic rhinitis in everyday medical practice; ERASM, *Enquête pharmaco-épidémiologique sur la prise en charge de la rhinite allergique saisonnière en pratique quotidienne en médecine générale* – Pharmacoepidemiologic survey on the management of seasonal allergic rhinitis in everyday medical practice; PRAGMA, *Programme de recherche appliquée à la gestion des maladies allergiques* – Programme of Research Applied to the Management of Allergic Diseases.

per-annuelle) studies. These surveys involved more than 2600 physicians and 6500 patients suffering from allergic rhinitis.

## Material and methods

### Structure and collection of questionnaires

The questionnaires filled out by physicians and patients were designed by a multidisciplinary group of allergist experts, the PRAGMA group (Programme de Recherche Applied to the Management of Allergic Diseases) (4). The patient questionnaire was strictly anonymous and was distributed to the patient during the clinical consultation along with a prepaid reply envelope to return to the CENBiotech evaluation centre in Dijon, France.

All physicians had to fill out a questionnaire for the first three to four patients who came to their consultation for what they diagnosed as seasonal allergic rhinitis during the period 2–27 May 2000 (ERASM study during the peak of the grass pollen season in France) and for what they diagnosed as perennial allergic rhinitis during the period 15 November to 15 March 2000 (ERAP study). The diagnosis of allergic rhinitis was based on the clinical history (suggestive symptoms in suggestive circumstances) and although we did not ask for skin prick tests or for specific IgE measurements, 50% of the patients had already undergone these diagnostic tests and knew they were sensitized to aero-allergens and 74% of the remaining patients underwent either one or the other allergy test. Based on the patient auto-questionnaire, patients were divided into intermittent (patients suffering from rhinitis less than 4 days a week or less than four consecutive weeks a year) and persistent (patients suffering from rhinitis more than 4 days a week and more than four consecutive weeks a year) rhinitis (3).

### Analysis of the data

The files thus collected were forwarded to the Medical Biostatistics Department of CENBiotech, where they were processed and analysed with SAS software version 6.12. To address the objective of the present paper, we simply compared the following numbers: (i) patients enrolled as 'seasonal allergic rhinitis' and classified 'intermittent' or 'persistent' allergic rhinitis in the first survey and (ii) patients enrolled as 'perennial allergic rhinitis' and classified 'intermittent' or 'persistent' allergic rhinitis in the second survey. Chi-square tests were utilized for comparisons.

## Results

### Description of physicians

The surveys were conducted by 2010 general practitioners (in both ERASM and ERAP studies) and by 657 specialists (204 chest physicians, 235 allergologists and 218 ENT doctors), mean age  $45.9 \pm 7.3$ . About 63% ( $n = 1680$ ) were practicing in an urban environment, with 15.8% ( $n = 421$ ) in the Paris metropolitan region, 21.4% ( $n = 570$ ) were in a semi-rural area and 15.6% ( $n = 417$ ) in a rural area. Their distribution was homogeneous throughout France.

Each physician enrolled 2.5 patients on average, instead of 3–4 as originally planned.

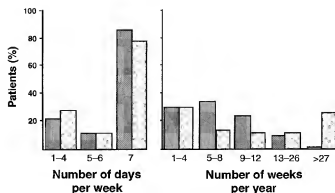


Figure 1. Duration of symptoms in days per week and consecutive weeks per year for patients with seasonal allergic rhinitis (ERASM survey – dark grey,  $n = 3026$ ) and perennial allergic rhinitis (ERAP survey – light grey,  $n = 3507$ ,  $P < 0.03$ ).

### Case history of allergic rhinitis

A total of 6533 patients, aged  $36.5 \pm 13.6$  years, consulted for seasonal ( $n = 3026$ ) or perennial ( $n = 3507$ ) allergic rhinitis under conditions complying with the study protocol. Among these, 49.2% ( $n = 3212$ ) were men.

Patients had been presenting with identical symptoms for about 10 years ( $10.2 \pm 9.2$  years) at a rate of 6 days a week during eight consecutive weeks a year on average (Fig. 1). This was the case whether enrolled in the seasonal allergic rhinitis study (ERASM:  $5.9 \pm 1.7$  days and  $8.7 \pm 7.7$  weeks) or in the perennial allergic rhinitis study (ERAP:  $5.8 \pm 1.8$  days and  $9.2 \pm 7.7$  weeks). About 43.7% of the patients classified by their doctors as seasonal (ERASM study) had persistent rhinitis and 44.6% of the patients classified by their doctors as perennial (ERAP study) had intermittent rhinitis (53.1% for general practitioners, 38.8% for chest physicians, 34.8% for allergologists and 35.8% for ENT doctors,  $P < 0.0001$ ).

Two-thirds of the patients (62.1%;  $n = 4060$ ) claimed they knew which allergen was responsible for the disease and 51.6% ( $n = 3371$ ) had previously undergone tests to confirm their allergy. About 58.7% ( $n = 3838$ ) had previously taken treatments for the same type of symptoms.

### Symptoms presented by patients

In patients with seasonal symptoms (ERASM), 56.3% had intermittent rhinitis. In patients with perennial symptoms (ERAP), 55.4% had persistent rhinitis. The sub-group of patients suffering from persistent symptoms (50% total) did not differ from the rest of the group in terms of age and sex.

Among the symptoms presented by the patients, the classical triad of sneezing and/or nasal itching, watery

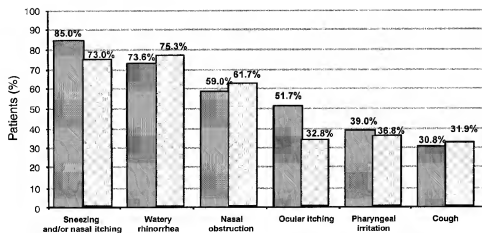


Figure 2. Distribution of symptoms which affected the 6533 patients in the present ERASM (seasonal allergic rhinitis) (dark grey,  $n = 3026$ ) and ERAP (perennial allergic rhinitis) (light grey,  $n = 3507$ ) surveys.

rhinorrhea and nasal obstruction was observed in over two-thirds of the patients in both groups (seasonal and perennial) (Fig. 2). Other symptoms were also commonly present, in particular ocular symptoms (43.6%;  $n = 2851$ ) or respiratory tract symptoms such as pharyngeal irritation (37.8%;  $n = 2470$ ), cough (31.4%;  $n = 2050$ ) (Fig. 2) or dyspnoea (13.3;  $n = 872$ ).

## Discussion

The ERASM (4) and ERAP surveys were large cross-sectional studies assessing the management in daily medical practice of adult patients presenting with seasonal and perennial allergic rhinitis in France. Conducted on a vast sample of practitioners homogeneously distributed throughout France, over 6500 subjects with allergic rhinitis were enrolled in order to test the new ARIA classification (3). Surprisingly, 43.7% of the patients, classified by their doctor as seasonal, did in fact have persistent rhinitis, whereas 44.6% of the patients classified as perennial had intermittent rhinitis.

The diagnosis of allergic rhinitis does not pose any problem for the practitioners. Although the ARIA document points out that it is difficult to diagnose allergy on the basis of clinical history only (3), it has been demonstrated that a clear history of rhinitic symptoms under the same circumstances for several years has a positive predictive value of 82–85% for seasonal allergens and at least 77% for perennial allergens (5). It is, however, easier to diagnose rhinitis caused by pollens or animal danders than rhinitis caused by house dust mites (6). Thus, even though a few patients may not have had allergic rhinitis, misdiagnosis is uncommon and is not a major problem in pharmaco-epidemiologic surveys.

The ARIA document has changed the classification of allergic rhinitis (3) because, intuitively, the experts of the WHO workshop thought that the previous classification into 'seasonal' and 'perennial' was unsatisfactory. However, this new classification had never been tested and was subject to some discussion. This study provides, for the first time, evidence that the new classification is more appropriate than the previous one. It shows that over 50% of the patients sensitized to seasonal allergens can present with symptoms for over a period of 4 weeks, but, more surprisingly, many patients with perennial rhinitis have short-term symptoms. It has already been shown that patients with perennial allergic rhinitis could have short-term symptoms (7), but the percentage of patients with 'intermittent' symptoms was not known. It is possible that, in other regions of the world, the percentage of patients suffering from 'persistent' perennial rhinitis is greater than in our study, as the regional distribution of allergens differs widely around the world. However, it is clear that many so-called perennial allergens such as house dust mites have a seasonal variability in many parts of the world (8) inducing seasonal variability of symptoms. It is therefore not surprising that many patients with perennial rhinitis could have intermittent disease.

In seasonal allergic rhinitis, symptoms of rhinitis can indeed appear as having a long duration of time, as shown in our ERASM study (43.7% with persistent symptoms) (4). This can reflect either a long period of pollination as is the case for grass pollens in Florida (9), *Parietaria* pollens in Italy (10) or multiple pollen sensitizations (11) and/or an association with perennial allergens (with seasonal exacerbations) as was the case in 25 to over 75% of the patients in the van Cauwenberge et al. (12) and Sibbald et al. (13) studies, respectively.

Therefore, the proposal of the ARIA expert panel defining the chronology of allergic rhinitis as number of days per week and consecutive weeks per year really does change daily physician practice. This is of great importance since the duration of the symptoms sets the treatment modalities (3).

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